

Serial No. 10/671,086

February 8, 2006

Page 2

AMENDMENTS TO THE SPECIFICATION:

--[0022] The above-mentioned features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

FIG. 1 is a front perspective view of a prior art target assembly;

FIG. 2 is a rear perspective view of the prior art target assembly;

FIG. 3 is a cross-sectional view of the prior art target assembly;

FIG. 4 is a front perspective view of one embodiment of a target assembly;

FIG. 5 is a cross-sectional view of one embodiment of a target assembly along the axis 5-5 as shown in Fig. 4; and

FIG. 6 is a cross-sectional view of the upper cooling channel and the target chamber.--

--[0024] FIGS. 4 and 5 illustrate one embodiment of the present invention. The target assembly 10 has a target body with a relatively solid outside surface with an upper flow channel 404 and a lower flow channel 406 through which cooling water can be provided. The target chamber 104' has a front window 310 approximating a one-quarter circle, and the target chamber 104' extends into the target assembly 10 with a sloping, or canted, rear wall 512 to allow for expansion of a vapor jet adjacent to the beam strike area 312 of the entrance window 310. The target liquid is introduced into the target assembly 10 through port 106, located at the lower portion of the target chamber 104' and extending into the front face 112 of the target assembly 10. The target assembly 10 contains the same inlet and outlet ports 220 and 222 as shown in Figs. 2 and 3.--

Serial No: 10/671,086

February 8, 2006

Page 3

--[0028] The target assembly 10 includes a target chamber 104', which is filled with enriched water via an inlet port 220 on the back side 212, as shown in Fig. 3. The target chamber 104' is sealed with a window 310 adjacent the front face 112. The inlet port 220 feeds an inlet channel 106, through which the enriched water enters and fills the target chamber 104'. The air pushed out of the target chamber 104' exhausts through the outlet port 222. Before being irradiated, the enriched water completely fills the target chamber 104'. The accelerator beam strikes the target chamber 104' at a circular region 312 (the beam strike) in the lower portion of the chamber 104'. The beam heats the window 310 and the enriched water in the immediate vicinity of the window 310. The window 310 is typically Havar and is elevated to a high temperature by the beam. The window 310 transfers some of its heat to the water, which is also being heated by the beam. The enriched water experiences localized boiling adjacent to the window 310 at the beam strike area 312, which causes a jet of superheated steam to form. The jet moves upward, into a stable steam bubble in the top portion 514 of the target chamber 104'. The enriched water circulates in the target chamber 104' from the target strike area 312, to the top portion 514 of the target chamber 104', where it is condensed, down the back wall 512 and the side walls of the chamber 104' and toward the front window 310, where the enriched water re-enters the beam strike area 312 and is reheated, continuing the cycle.--.